FOREIGN DIRECT INVESTMENT AND ITS EFFECTS ON ECONOMIC GROWTH OF DONG NAI

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ABSTRACT

At present, Dong Nai Province plays an important role in appealing to foreign direct investment (FDI) in Vietnam. This has brought about a lot of considerable contributions to the economic growth rate of our country in general and Dong Nai in particular in the global context of integration. This paper aims to analyse and assess FDI effects on Dong Nai's economic growth. Based on the theories of FDI and economic growth, the paper also identifies the factors which affirm FDI attraction into Dong Nai and proposes recommendations so that Dong Nai government can give better policies to manage and strengthen FDI capital effectively, appealing to more FDI for Dong Nai Province.

Keywords*: FDI effect, economic growth, FDI attraction, Dong Nai*

1. Introduction

Being one of the localities which attract a lot of FDI capital in the whole country, Dong Nai, a key economic region in the Southern Vietnam has had 63 industrial parks so far. FDI enterprises in Dong Nai have considerably contributed to the economic development of the province, made much employment for laborers and increased new competitiveness for Dong Nai.

There are many different views on FDI, depending on the evaluation method of FDI inflows:

The International Monetary Fund defines FDI as "an investment with long-term relations; whereby, an organization in an economy (direct investor) derives long-term benefits from a business located in another economy. The purpose of the direct investor is to have a lot of influence on managing the business located in that economy" [1].

According to the World Trade Organization, "Foreign direct investment occurs when an investor from a country (investor country) acquires an asset in another country (FDI attraction country) along with the right to manage the asset. The management means is used to distinguish FDI from other financial instruments. In most cases, both the investor and the property he or she manages abroad are business establishments. In such cases, investors are often called parent companies and their assets are called subsidiaries or affiliates" [2].

Thanks to the law on foreign investment in 2014 which was valid in July 1st, 2015, FDI has positively affected the host country, Vietnam, and its inflows also have many positive contributions to Dong Nai Province in particular and Vietnam in general:

Promote economic restructuring: FDI contributes positively to the economic restructuring (58.4% of FDI capital is concentrated in the industry-construction sector). Industry-construction growth rate of the FDI

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sector averages nearly 18% per year, higher than the industry growth rate.

Contribute to exportation: FDI enterprises have made significant contributions to Vietnam's export turnover. Before 2012, exports of FDI only reached 48.6% of the total turnover. Since 2018, the FDI sector's exports have become a major factor promoting exports, accounting for about 70% of the total exports.

Contribute to the supporting industry: "Vietnam's supporting industry is limited. With the presence of FDI projects that have contributed significantly to the development of this sector and FDI enterprises that have shown superiority to domestic enterprises, the supporting industry sector has attracted a lot of investment capital of electricity and electronics with over 12 billion USD, mechanics with over 6.4 billion USD, and textile with over 6.7 billion USD, chemical sector with over USD 2.9 billion and the leather and footwear industry with 323.6 million USD" [3].

Technology transfer and technology improvement: Through technology transfer contracts, the FDI sector has contributed to promoting advanced technology transfer into Vietnam, improving technological capacity in many fields.

The exogenous growth theory suggests that FDI increases capital in the host country and then promotes economic growth towards a new steady state by accumulating capital. According to this theory, FDI affects economic growth through impact on domestic investment (Herzer et al., 2008).

The endogenous growth theory, according to Mello (1999), Kim and Seo (2003), says that the effects of FDI on economic growth are expected to have two parts: firstly, FDI may affect economic growth through capital accumulation by introducing new goods and foreign technology; Secondly, FDI can promote economic growth through research and development in the host country on knowledge transfer. Therefore, FDI can theoretically play an important role in economic growth through increasing capital accumulation, technology spread and progress (Herzer et al., 2008). This conclusion shows that FDI can contribute to economic development and promise potential benefits for development in the host country. In recent years, FDI plays an increasingly important role in capital accumulation and economic growth in developing countries.

According to David Begg, Stanley Fischer and Rudiger Dornbusch (2005), "Economic growth is the rate of real income changes or actual output; the growth rate of a variable is the percentage of annual increase. In order to determine economic growth, we must specify both measured variables and measured time" [4]. According to Banchard (2000), "GDP is the final value of goods and services calculated by the final consumption produced in the economy over a certain period or GDP is the total value added in an economy in a certain period" [5]. Based on the theorical foundations of FDI and economic growth, and the previous studies about FDI effects on economic growth, the research was conducted to

find out the relationship between FDI and economic growth of Dong Nai Province, assess the influence of FDI inflows on economic growth of Dong Nai and identify factors attracting FDI inflows into Dong Nai. Accordingly, the paper also gives recommendations to attract more FDI inflows in Dong Nai and helps Dong Nai government improve better policies in promoting the economic growth for this province in the future.

2. The model and research methodology

2.1. Model of the impact of FDI inflows on economic growth

Based on the Cobb-Douglas model, the research identifies an analytical framework to confirm that FDI inflows become a factor in the model of economic growth, which demonstrates both prompting impact and shifting impact on economic growth in the investment-receiving country, making the production capacity curve of the receiving country (new industrial country) asymptotic to the production capacity curve of the investment country (developed country).

2.2. Experimental model

From the analytical framework, based on models of empirical research (Wei K., 2008; Elboiashi, Hosein Ali, 2011; Sajid A., Lan N. P, 2011; Chien et al., 2012; ...), the research on the impact of FDI inflows on Dong Nai's economic growth has a dynamic model as follows:

$$Yit = \beta_0 + \beta_1 Yit_{-1} + \beta_2 Xit + \beta_3 CONTROLit + eit$$

In which:

- *i* is industrial zones: 63 industrial zones in Dong Nai Province; *t* is time, period 2015-2020;

- Y is Economic growth, derived by actual average GDP price of the province/ city.

- Xit: variables in the Cobb-Douglas model, including FDI, private investment, human resources.

- $CONTROL_{it}$: Control variables Fiscal variables

Tax collection*:* To a certain extent, tax policy has the effect of stimulating economic growth. In contrast, tax collection can also inhibit growth. The higher the tax rate is, the more distorted the economy is (Barro, 1990; Zhang and Zou, 1998; Jin and Zou, 2005). According to Ly Nguyen Thi and Trung Tra (2016), "Tax theory changes tax compliance behavior and creates social losses and is to assess the distortion of taxes in economic growth as well as shows that taxes negatively affect growth" [6].

Public investment*:* The state's investment resources for economic growth play an important role, directing other investment resources, especially in social areas of low economic efficiency. That is also the reason that public investment may not promote positive growth and be sometimes contrary to growth, especially in developing countries. Chien et al. (2012) the author shows that public spending has the same impact on economic growth, and has "Adverse 2effects on growth" (Elboiashi Hosein Ali, 2011).

Regular spending: According to Bose et al. (2007), education, science,

technology, environment and health care are important for future economic prosperity.

Other control variables

Infrastructure: Many studies show that infrastructure contributes significantly to economic growth. Trung Tra and Ly Nguyen Thi (2016) in the study of factors attracting FDI into Dong Nai for growth and investment in infrastructure investment shows the same direction.

Trade openness: The total import-export turnover against GDP is like a derivation for trade openness in assessing the impact on economic growth.

Consumer price index: Empirical studies on FDI and economic growth show that consumer price index negatively affects economic growth (Adeolu, 2007; Wu Jyun-Yi, Hsu Chih-Chiang, 2008).

Technology gap: is calculated by the distance ratio between per capita income of the research object and the GDP per capita of the refernce object (Elboiashi, Hosein Ali, 2011).

Table 1: *Variables in the empirical model of economic growth and expected signs*

Independent variables in the empirical model of economic growth	expected signs
I. Variables in the Cobb-Douglas model	
1. Private investment	+
2. Foreign direct investment	+
3. Human resources	+
II. Fiscal variable	
1. Collect taxes	+/-
2. Public investment	+/-
3. Regular spending	+/-
III. Control variables	
1. Infrastructure	+
2. Trade openness	+
3. Consumer price index	+/-
4. Technology gap	+

(Source: The author's synthesis)

2.3. Determinants of FDI inflows

Human Resources

The infrastructure

Skilled labor

Macroeconomic policy

Macroeconomic stability

Table 2: *Variables in the empirical model of FDI attraction and Expected signs*

Independent variables in the empirical model attract FDI inflows	Expected sign
1. Human resources	+
2. Trade openness	+
3. Infrastructure	+
4. Skilled labor	+
5. Macroeconomic policy	+
6. Macroeconomic stability	+/-

(Source: The author's synthesis)

2.4. Method of estimation

Arellano-Bond's GMM differential method is appropriately designed for panel data with small T and large N (Judson et al., 1996; Roodman, 2006). Methods for dynamic table data use appropriate latencies of instrumented variables to create instruments.

2.5. Data and data attribute test

Table 3: *Describing how to calculate and interpret variables in the model of economic growth*

Variable name	ymbol	Calculation and interpretation
Economic growth	GDP	Logarithm of real GDP per capita
Private investment	PINV	Logarithm of real private investment
Foreign direct investment	FDI	Logarithm of real FDI inflows
Public investment	GIVN	Public investment / GDP, including local spending and support from the Central Government
Human resources	LABO	Number of people in working age / population
Tax collection	BREV	Budget tax collection / GDP, derived from local revenues and transfer of the Central Government
Ordinary expenditure	CBEXP	Regular spending / GDP
Trade openness	OPEN	Total export and import / GDP
Infrastructure	TELE	Logarithm of the average number of postpaid and mobile phone subscribers
Consumer price index	CPI	Logarithm of consumer price index
Technology gap	GAP	(Local GDP - national GDP) / GDP of the whole country

(Source: The author's synthesis)

3. Findings

3.1. Granger causality test

The results indicate a two-way causal relationship between FDI and private investment, human resources, tax revenues, infrastructure, trade openness and technology disparities. This shows that FDI inflows create a pervasive effect on factors that contribute to economic growth through impact on private investment as well as human resources improvement, create revenues for the state budget, promote the development of infrastructure, expand trade openness, and improve the level of development.

In addition, the latency of the dependent variable (economic growth) is based on Christophe Hurlin (2004): 2 * K + 5 <T, in which: K is the latency, T is the time. According to the research topic, T = 16, latency <5 is reasonable.

3.2. Test of correlation coefficient

Based on the Pearson correlation coefficient theory, statistical results of correlation coefficients among variables in the experimental model show that most of the pairs of variables have a statistically significant relationship of less than or equal to 0.5%. In particular, the pairs have strong correlations (TELE, PINV) and (TELE, GDP) reflecting the private investment used in infrastructure to promote economic growth, and in the remaining pairs of variables, the correlation level is average. Therefore, the use of all of these variables in the model is appropriate (Evans, 1996).

Table 4: *Statistics of Pearson correlation coefficients of variables*

	GDP	PINV	FDI	LABO	GINV	BREV	CBEXP	TEL E	OPEN	CPI	GAP
GDP	1										
PINV	.62*	1									
FDI	.65*	.49*	1								
LABO	.08*	.33*	.10*	1							
GINV	-.22*	-.19*	-.15*	-.11*	1						
BREV	.54*	.30*	.49*	-.13*	.06	1					
CBEXP	-.22*	-.11*	-.30*	.30*	.33*	-.12*	1				
TELE	.72*	0.82*	.54*	.30*	-.05	.41*	.06*	1			
OPEN	.45*	.40*	.54*	.14*	-.16*	.42*	-.17*	.40*	1		
CPI	.28*	0.27*	.15*	.35*	.01	.07*	.16*	.38*	.11*	1	
GAP	.73*	.12*	.40*	-.27*	-.20*	.37*	-.30*	.23*	.21*	-.00	1

(*): Meaning at <, = 5%

3.3. Stationarity test

Based on the theory of stationarity test, the stationarity test of Fisher table data with the latency of 2 with and without the tendency of Augmented Dickey Fuller test attribute and Phillips-Perron test attribute is shown in Table 3.2. Accordingly, most of the original variables stop at the significance level of 1% and 5%, except for GDP and GAP. So the study continues to use the Fisher test for stationarity teast at the difference of GDP variable and GAP variable. The results showed that the difference of GDP and GAP variables was at 1% significance level in both cases of using Fisher test with Augmented Dickey Fuller and Phillips-Perron attributes.

Table 5: *Testing the staionarity of variables*

Variables	Augmented Dickey Fuller		Phillips	
	Prob > chi2		Prob > chi2	
	Without tendency	With tendency	Without tendency	With tendency
GDP	1.0000	0.8620	1.0000	0.1276
PINV	0.2373	0.0000***	0.5054	0.0000***
FDI	0.3361	0.0000***	0.0002***	0.0000***
LABO	0.9314	0.0001***	1.0000	0.0000***
GINV	0.0018**	0.0190**	0.0111**	0.0549*
BREV	0.3450	0.0004***	0.0005***	0.0216**
CBEXP	0.0000***	0.0000***	0.0000***	0.0000***
TELE	0.0093***	1.0000	0.0000***	1.0000
OPEN	0.0000***	0.0000***	0.0000***	0.0069***
CPI	1.0000	0.9978	0.0000***	0.0000***
GAP	0.9999	0.9267	1.0000	0.9932

(***): Statistical significance 1%; (**): Statistical significance 5%; (*): Statistical significance10%

Table 6: *Regression with GMM Arellano-Bond method*

Dependent variable: Economic growth

Variables	Model 1	Model 2	Model 3	Model 4
	Coeff	Coeff	Coeff	Coeff
Economic growth (-1)	.2766722***	.2674109***	.2679663***	.2249946***
Economic growth (-2)	.1082713*	.1072814*	.1048672*	.141283**

Private investment	.2779348***	.2750409***	.2805962***	.2767417***
FDI flows	.0272221**	.0328316***	.0319368**	.0254382**
Human resources	.4645269*	.4602516*	.4542675*	.5075249**
Public investment	-.2197045**	-.2029524**	-.2055994**	-.1823935**
Tax collection	-.121127	-.1327604	-.1374301	-.0812087
Ordinary expenditure	.2896991*	.2777896	.2656103	.2499709
Infrastructure	.0322443*	.0292126	.0281526	.0311138*
Trade openness		.0197188**	.0197031**	.0213423**
Consumer price index	-.1340043	-.1236057	-.1256067	-.1087054
Technology gap	-.0019343	-.0087073	-.0082026	.0292234
FDI for development			.0026228	-.0211176
*WEALTH*GEO*ΔFDI*				.0067636*
Obs	541	541	541	541
Sargan test	0.245	0.209	0.251	0.167
AR(2)	0.320	0.372	0.369	0.473

(***): Statistical significance 1%; (**):Statistical significance 5%; (*):Statistical significance 10%

3.4. Estimating the dynamics of FDI inflows and economic growth by PMG method

Table 7: *Estimating short-term and long-term dynamics by PMG method*

Long-term co-link vectors. Dependent variable: Economic growth			
Variables	**Coeff**	**Std**	**Prob**
Private investment	.857587	.0341448	0.000***
FDI flows	.2261728	.0111446	0.000***
Human resources	1.979529	.4777566	0.000***
Public investment	-.9955448	.1043565	0.000***
Tax collection	1.281256	.1958856	0.000***
Short-term dynamics. Dependent variable: Economic growth			
Adjustment coefficient	.077029	.0369953	0.037**
FDI flows	.0027944	.0059165	0.637

(***): Statistical significance 1%; (**): Statistical significance 5%; (*): Statistical significance 10%

4. Discussions for estimated results

The effect of FDI on economic growth: The research result helps identify the positive impact of FDI inflows on the economic growth of Dong Nai Province, Vietnam.

The effect of private investment on economic growth: The research result confirms the positive impact of private investment on economic growth as shown in the Cobb - Douglas theoretical research model, as well as the empirical studies related to FDI and economic growth affirm the positive impact of private investment on growth.

The effect of human resources on FDI flows: FDI is the project where investors are the companies in investment countries while investment recipients are other countries. During the operation of companies, FDI needs local human resources in the host country. Therefore, the role of human resources is very important in attracting the flow of FDI.

In Dong Nai's condition, human resources have a positive and significant impact to attract FDI inflows. The experimental result with PMG method shows that human resources have a positive impact on attracting FDI inflows, with a significant level of 1%. This shows that the role of human resources is crucial to attracting FDI flows into Dong Nai Province.

The effect of human resources on economic growth: The result shows that human resources promote economic growth. This is suitable to many previous studies (Elboiashi Hosein Ali, 2011; Mahnaz Rabiei and Zohreh Ghavam Masoudi, 2012).

The effect of tax collection on economic growth: The estimated result with PMG method shows that tax collection is positively correlated with economic growth at 1% significance level. This shows that tax collection at the acceptable level stimulates economic growth.

The effect of private investment on economic growth: The regression result shows that public investment has a negative impact on economic growth, not as the expected sign of the study with both estimation methods.

The estimated result by PMG method shows that in the long term, 1% increase in public investment has an impact on reducing economic growth of 0.99% (1% significance level). This result shows the public investment in Vietnam has not been ineffective over the past time, and many experts also identify inefficiencies of many investment projects from the state budget. “The reality of public investment management in recent years has showed that wastes and losses have many different causes, such as loose management, spreading investment, corruption, appropriation in construction, etc.” – Bui Quang Vinh, the Minister of Ministry of Planning and Investment of Vietnam, presented in the report on the Public Investment Law Project before the National Assembly on November 16, 2015 [7].

Recently, empirical studies in Vietnam on FDI and economic growth have recorded the same impact of public investment on economic growth (Nguyen Phu Tu and Huynh Cong Minh, 2010; Chien et al., 2012), confirming that public expenditure is not statistically significant to explain the impact on economic growth when studying FDI and growth in Vietnam.

***The effect of ordinary expenditure on economic growth**:* The regression result with the GMM model shows that ordinary expenditure has a positive impact on economic growth with a 10% significance level.

***The effect of trade openness on economic growth**:* The research result is suitable to the reality of the past time when Vietnam implemented the economic open-door policy in 1986, and Vietnam's economy has made great progress.

The effect of infrastructure on economic growth: The research result shows that infrastructure has a positive impact on economic growth with 10% significance level. However, Vietnam is a developing country with the incomplete infrastructure, so the process of infrastructure improvement is very significant to economic growth.

5. Conclusion

The research shows the meaningful impact of the factors, such as private investment, human resources, trade openness, ordinary expenditures, and infrastructure on economic growth in Dong Nai Province, helping Dong Nai government find better solutions in the tax management in the future.

Firstly, the quality of labor, including skills, knowledge and discipline of the workforce is the most important factor of economic growth. However, a country's human resources are finite; to use advanced technologies, labors need to be trained.

Secondly, the rational macroeconomic policy of the investment recipient country has a significant impact on FDI attraction. In research conditions in Vietnam in general and Dong Nai in particular, this observed variable has results consistent with research expectations, reflecting the positive impact of macroeconomic policy on FDI.

Thirdly, biotechnology and new materials technology currently significantly contribute to global economic growth. As mentioned above, one of the important characteristics related to FDI is the increase in advanced technology. Therefore, FDI channel plays an important role in transferring advanced technology to the investment recipient country.

Fourthly, in addition to the factors of market size, conditions of human resources, macroeconomic policies and labor quality, the test results also show that trade openness has an impact on FDI attraction. However, the estimated results do not give the expected sign of the research topic. Actually, Vietnam has been an open economy since 1986, but many countries today, including large countries (the United States, some EU countries) have not considered Vietnam to have a market economy. Therefore, trade openness has not really attracted FDI inflows into Vietnam in general and Dong Nai in particular, especially in the short term. Therefore, Vietnam needs to implement an appropriate trade opening to promote FDI inflows in the coming time.

Fifthly, the stability of the economy has an important impact on FDI attraction, so economic shocks often show a negative impact on FDI inflows. Research results in Vietnam show that economic shocks have a negative

impact on attracting FDI inflows, which is in line with research expectations, showing an increase in consumer price index, with negative impacts on attracting FDI inflows in Vietnam regions, including Dong Nai.

Finally, to appeal to more FDI, Dong Nai should choose suitable projects with its effective management to guarantee the sustainable development of economy. However, foreign direct investment also has negative effects, such as environmental pollution, price transfer activities, etc. According to the experience of many countries in the world, attracting FDI will promote the process of industrialization - modernization of the host country, leading to the process of urbanization and the increase in mechanical population in order to meet the labor needs of FDI enterprise This also increases the pressure on urban technical infrastructure and causes environmental pollution for the locality, especially Dong Nai Province. Without effective measures, this will result in a lot of big losses for economy. Thus, Dong Nai government has to "say no" to investment projects with outdated technology which causes environment pollution. This brings good orientation for the management of FDI capital resources to promote positive effects and limit negative impacts on the business environment in general, contribute to the improvement of technical and social infrastructure and maintain the sustainable economic growth of Dong Nai Province.

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ĐẦU TƯ TRỰC TIẾP NƯỚC NGOÀI VÀ HIỆU QUẢ TĂNG TRƯỞNG KINH TẾ CỦA ĐỒNG NAI

TÓM TẮT

Hiện nay, tỉnh Đồng Nai đóng vai trò quan trọng trong việc thu hút đầu tư trực tiếp nước ngoài (FDI) vào Việt Nam. Điều này mang lại rất nhiều đóng góp đáng kể cho tốc độ tăng trưởng kinh tế của Việt Nam nói chung và Đồng Nai nói riêng, trong bối cảnh hội nhập kinh tế toàn cầu. Bài viết nhằm phân tích và đánh giá hiệu quả FDI đối với tăng trưởng kinh tế của Đồng Nai. Dựa trên lý thuyết về FDI và tăng trưởng kinh tế, xác định các yếu tố khẳng định thu hút FDI vào Đồng Nai và đề xuất các khuyến nghị để tỉnh Đồng Nai có thể đưa ra các chính sách tốt hơn trong quản lý và tăng cường vốn FDI hiệu quả, thu hút nhiều vốn FDI.

Từ khóa: *Đồng Nai, hiệu quả FDI, tăng trưởng kinh tế, thu hút FDI*

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